

City of Sioux Falls Employee's Retirement System
Annual Actuarial Valuation Report
December 31, 2018



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February 25, 2019

Board of Trustees
City of Sioux Falls Employee's Retirement System
Sioux Falls, South Dakota

Ladies and Gentlemen:

The results of the December 31, 2018 actuarial valuation of the City of Sioux Falls Employee's Retirement System are presented in this report. The purpose of the valuation was to measure the System's funding progress, and to determine the employer contribution for the 2020 fiscal year. This report should not be relied upon for any other purpose. This report may be distributed to parties other than the Retirement Board only in its entirety and only with the permission of the Board. Gabriel, Roeder, Smith & Company is not responsible for unauthorized use of this report.

The valuation was based upon the assumptions and methods adopted by the Board, information furnished by the System concerning Retirement System benefits, financial transactions, individual members, terminated members, retirees and beneficiaries. Data was checked for internal and year to year consistency, but was not audited by us. As a result, we are unable to assume responsibility for the accuracy or completeness of the data provided.

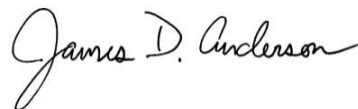
Future actuarial measurements may differ significantly from those presented in this report due to such factors as experience differing from that anticipated by actuarial assumptions, changes in plan provisions, actuarial assumptions/methods or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. This valuation was based on the assumption that the plan sponsor will continue to be able to make any contributions necessary to fund this plan in the future. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed. The fiscal year 2020 contributions shown in this report were determined using the actuarial assumptions and methods disclosed in Section C of this report. This report includes risk metrics on pages B-4, C-2 and D-1 but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. This additional assessment of risk was beyond the scope of this assignment. We encourage a review and assessment of investment and other significant risks which may have a material impact on the Fund's financial position.

To the best of our knowledge, this report is complete and accurate and the valuation was made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards Board and in compliance with the applicable state statutes. Louise M. Gates and James D. Anderson are independent of the plan sponsor and are Members of the American Academy of Actuaries (MAAA) who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. It is our opinion that the actuarial assumptions used for the valuation produce results which are reasonable.

Respectfully submitted,



Louise M. Gates, ASA, FCA, MAAA



James D. Anderson, FSA, EA, FCA, MAAA

LMG/JDA

SECTION A

VALUATION RESULTS

Financial Objective

The financial objective of the Retirement System is to establish and receive contributions which will accumulate reserves during members' working lifetimes which will be sufficient to pay promised benefits throughout retirement.

Contributions

The Retirement System is supported by member contributions, City contributions and investment income from Retirement System assets.

Contributions which satisfy the financial objective are determined by an annual actuarial valuation and are sufficient to:

- (1) cover the actuarial present value of benefits assigned to the current year by the actuarial cost methods described in Section C (the normal cost); and
- (2) amortize over a period of future years the actuarial present value of benefits not covered by valuation assets and anticipated future normal costs (unfunded actuarial accrued liability).

Pension contribution requirements for the year beginning January 1, 2020 are shown on page A-2.

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 7.30% on the actuarial value of assets), then the following outcomes are expected:

1. The employer normal cost is expected to decrease over time due to the closure of the plan to new City employees.
2. The unfunded liability is expected to be paid off by the year 2039.

The funded status of the plan is expected to reach a 100% funded ratio by the year 2039.

Contributions Computed to Meet the Financial Objective of the Retirement System for the Fiscal Year Beginning January 1, 2020

Contributions for	Contribution Dollars	
	General/Management	Police
Total Normal Cost	\$4,738,081	\$3,399,625
Employee Portion	1,583,583	1,309,563
City Portion	3,154,498	2,090,062
Unfunded Actuarial Accrued Liabilities (UAAL) Contribution	\$2,927,537	\$1,873,531
Total Computed City Contribution	\$6,082,035	\$3,963,593

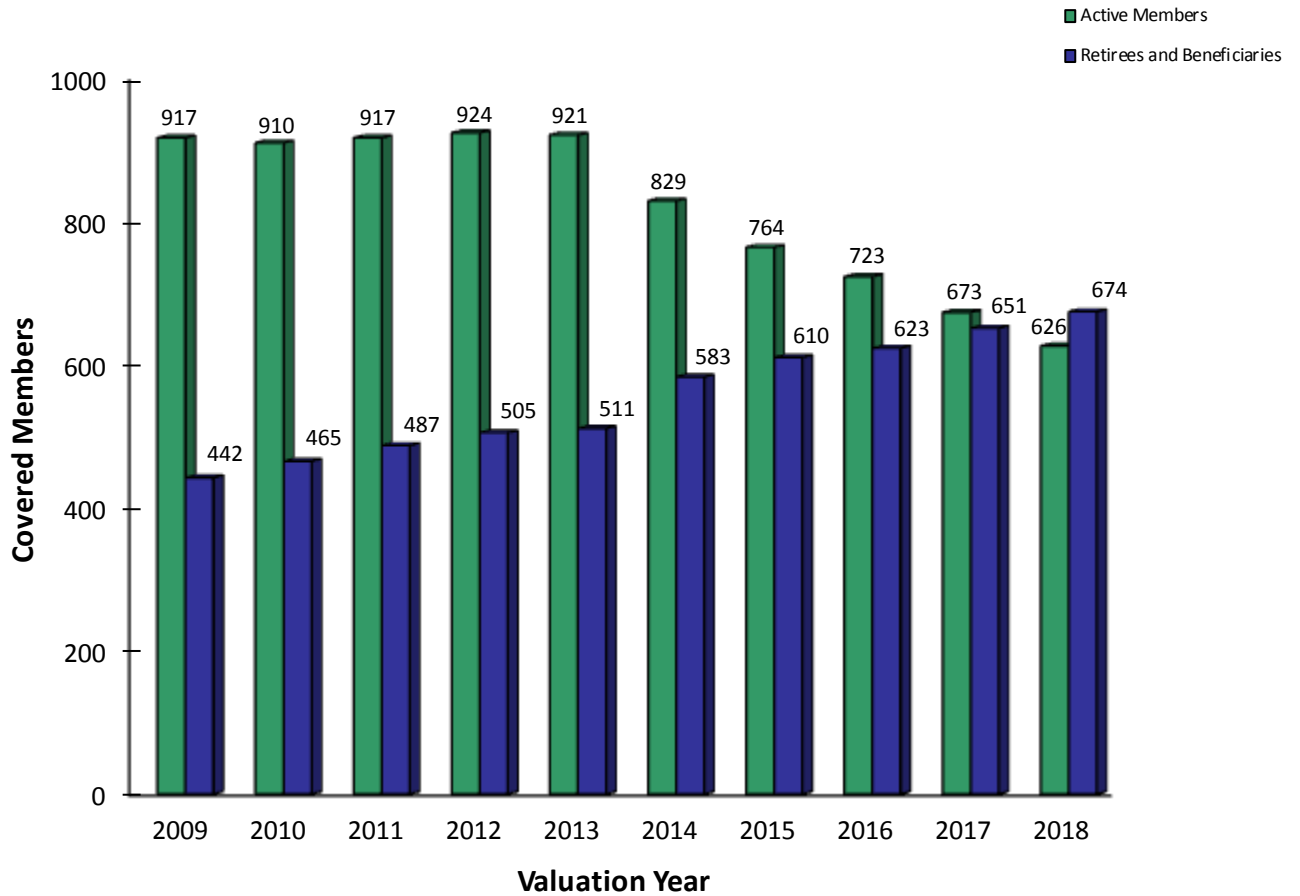
City General, Management and Police employees hired on or after July 1, 2013 become members of the South Dakota Retirement System (SDRS) instead of joining this Retirement System. Contributions are expressed in terms of dollars in this report instead of as percents of payroll. This is due to the use of the level dollar amortization method (appropriate for systems closed to new hires) to finance the Retirement System's unfunded actuarial accrued liabilities (UAAL).

The Pension Plan's UAAL was amortized as a level dollar amount over a period of 19 years.

The Police employee contribution to the Retirement System shown above was based on an employee contribution rate of 10.0% and plan member payroll projected to 2020. General and Management members are required to contribute 5.0% of pay during the year 2020.

The employer contribution shown above includes contributions for the stipend benefit which became effective January 1, 2014.

Active and Retired Pension Plan Members General, Management and Police Combined



The chart above shows current and future pension benefit recipients on each valuation date during the last 10 years.

Computed Pension Contributions Comparative Statement

Fiscal Year	Valuation	% of Payroll Contributions		Weighted Average	Level Dollar Contributions		
	Date December 31	General	Police		General	Police	Total
2006	2004 @	9.80 %	14.84 %	11.21 %			
2007	2005	10.38	14.96	11.67			
2008	2006	9.50	13.36	10.43			
2009	2007 **@	9.33	14.58	10.80			
2010	2008	10.93	17.66	12.73			
2011	2009	13.17	20.78	15.15			
2012	2010	12.86	20.72	14.91			
2013	2011 @	12.56	18.94	14.25			
2014	2012 @#				\$7,702,379	\$3,860,628	\$11,563,007
2015	2013 @				7,535,363	3,861,898	11,397,261
2016	2014 @				7,549,458	3,868,415	11,417,873
2017	2015 @				7,237,216	4,373,752	11,610,968
2018	2016				6,534,138	4,089,622	10,623,760
2019	2017 @				6,081,203	3,930,360	10,011,563
2020	2018 @				6,082,035	3,963,593	10,045,628

@ After changes in actuarial assumptions and/or methods.

After changes in benefit provisions.

** Reflects full funding credit.

Actuarial Balance Sheet - December 31, 2018

Present Pension Resources and Expected Future Pension Resources

	General	Police	Total
A. Valuation assets	\$261,139,785	\$166,176,619	\$427,316,404
B. Actuarial present value of expected future employer contributions			
1. For normal costs	27,684,743	18,208,058	45,892,801
2. For unfunded actuarial accrued liabilities	31,225,703	20,001,243	51,226,946
3. Total	58,910,446	38,209,301	97,119,747
C. Actuarial present value of expected future member contributions	14,361,908	11,445,353	25,807,261
D. Total actuarial present value of present and expected future resources	\$334,412,139	\$215,831,273	\$550,243,412

Actuarial Present Value of Expected Future Pension Benefit Payments and Reserves

A. To retirees and beneficiaries	\$169,326,073	\$ 114,375,770	\$283,701,843
B. To vested terminated members	6,973,290	337,949	7,311,239
C. To present active members			
1. Allocated to service rendered prior to valuation date	116,066,125	71,464,143	187,530,268
2. Allocated to service likely to be rendered after valuation date	42,046,651	29,653,411	71,700,062
3. Total	158,112,776	101,117,554	259,230,330
D. Total actuarial present value of expected future benefit payments	\$334,412,139	\$215,831,273	\$550,243,412

Derivation of Actuarial Gain (Loss) Year Ended December 31, 2018

The actuarial gains or losses realized in the operation of the Retirement System's Pension Plan provide an experience test. Gains and losses are expected to cancel each other over a period of years but sizable year-to-year fluctuations are common. Details of the derivation of the actuarial gain (loss) are shown below:

	<u>General</u>	<u>Police</u>
(1) UAAL at start of year	\$30,477,567	\$19,699,716
(2) Normal cost	4,758,010	3,301,822
(3) Contributions	9,572,540	7,620,147
(4) Interest accrual	2,049,132	1,280,460
(5) Expected UAAL before changes	27,712,169	16,661,852
(6) Change from benefit changes	0	0
(7) Change from revised actuarial assumptions	(3,000,000)	(2,000,000)
(8) Expected UAAL after changes	24,712,169	14,661,852
(9) Actual UAAL at end of year	31,225,703	20,001,243
(10) Gain (loss): (8) - (9)	(6,513,534)	(5,339,391)
(11) Gain (loss) as percent of AAL at start of year	(2.36)%	(3.10)%

Comments

Comment A: There were no benefit changes reported to the actuary in connection with this valuation of the Retirement System. This valuation of the System reflects an assumption change, namely the removal of a liability load for data adjustments.

Comment B: Retirement System experience was unfavorable during the 2018 plan year. During calendar year 2018, the investment return on plan assets was lower than long term expectations. The market value smoothing techniques used in this valuation of the System recognize both past and present investment experience. As a result, the recognized rate of return for the year was 3.82%. This experience was offset in part by post retirement cost of living adjustments which were lower than anticipated by actuarial assumptions. Details of this asset smoothing method are shown on page B-4.

Comment C: As directed by the Retirement System, \$3 million was transferred from the UI reserve to the pension reserve. This transfer was made to stabilize employer contributions to the Pension Fund in accordance with Retirement System policy

Comment D: As of the valuation date, the System's funding percent based on the total value of assets held in trust is 101.4%. As of December 31, 2017 the funding percent was 102.3%. If the market value of pension assets were used to determine the funding percent, the result would be 92.2% as of the valuation date.

Unless otherwise indicated, the funding status measurement presented in this report is based upon the actuarial accrued liability and the actuarial value of assets (including assets held in the unallocated income reserve). With regard to the funding status measurement presented in this report, it is important to note the following:

- The measurement is inappropriate for assessing the sufficiency of pension plan assets to cover the estimated cost of settling the plan's benefit obligations.
- The measurement is inappropriate for assessing the need for or the amount of future employer contributions.
- The measurement will produce a different result if the market value of assets is used instead of the actuarial value of assets, unless the actuarial value of assets equals the market value of assets.

Comment E: The last study of Retirement System experience was prepared in 2013. Given the elapsed time since the last actuarial study of System experience and the availability of new mortality tables, we recommend an experience study. Ideally, this would be prepared within the next year or two.

SECTION B

SUMMARY OF BENEFIT PROVISIONS AND VALUATION DATA

Benefit Provisions Evaluated and/or Considered (December 31, 2018)

Retirement System Eligibility:

New City employees (General, Management and Police) hired on or before June 30, 2013 will become members of this Retirement System. Individuals hired or rehired after June 30, 2013 will become members of the South Dakota Retirement System.

Regular Unreduced Retirement:

Eligibility - General members: age 55 with 30 or more years of service, or age 60 with 5 years of service.

Police: age 50 with 25 years of service, or age 60 with 15 years of service.

Mandatory Retirement Age - Police: age 60 (age 65 with employer consent).

Annual Amount - General members: 1.8% of final average pay times years of service.

Police: final average pay times the sum of a) 2.5% times the first 25 years of service, plus b) 1.5% times service in excess of 25 years.

Type of Final Average Pay - Highest 3 consecutive years out of last 10. Some lump sums are included.

Early Reduced Retirement:

Eligibility - 20 or more years of service.

Annual Amount - Same as regular retirement except that the benefit is actuarially reduced.

Deferred Retirement (vested benefit):

Eligibility - General Members: 5 years of service. Benefit commences at deferred retirement age.

Police: 15 years of service. Benefit commences at deferred retirement age.

Annual Amount - Computed as a regular retirement benefit based on service and final average pay at termination.

Duty Disability Retirement:

Eligibility - No age or service requirement.

Annual Amount - Computed as a regular retirement benefit. If disabled before eligible for regular retirement, additional service is credited for the period between disability and the time member would have been eligible for regular retirement if he had not been disabled. Minimum benefit is 12.5% of final average pay for general members and 20% of final average pay for police. Worker's Compensation payments are offset.

Benefit Provisions Evaluated and/or Considered (December 31, 2018)

Non-Duty Disability Retirement:

Eligibility - 10 years of service.

Annual Amount - Computed as a regular retirement benefit based on service and final average pay at time of disability. Worker's Compensation payments are offset.

Duty Death Before Retirement:

Eligibility - No age or service requirement. Worker's Compensation must be payable.

Annual Amount - Refund of accumulated contributions. Spouse receives pension of 1/3 of final average pay until death. Unmarried children under age 18 or an eligible handicapped child each receive an equal share of 1/6 of final average pay (if no spouse each child receives 1/4 to a maximum of 1/2). If no spouse or eligible children, dependent parents each receive 1/6 of final average pay (each parent's pension limited to \$600 annually). Worker's Compensation payments are offset.

Non-Duty Death Before Retirement:

Eligibility - 10 years of service.

Annual Amount - Spouse (or some other dependent if an Option B election was in force) receives a benefit computed as regular retirement benefit but actuarially reduced in accordance with a 100% joint and survivor election. Minimum benefit is \$360 annually. If no Option B election is in force, each unmarried child under age 18 or an eligible handicapped child receives \$2,400 annually. If no Option B election is in force and there is no eligible spouse, member contributions are refunded.

Post-Retirement Cost-of-Living Adjustments:

Annual increase equal to 100% of the June CPI change each year (with a cap of 3%) applied to the member's current pension benefit. The first increase will be granted after 36 months of retirement.

Employee Contributions:

Division	On or Before December 31, 2013	As of January 6, 2014	As of January 5, 2015
General/Management	3% of Compensation	4% of Compensation	5% of Compensation
Police	8% of Compensation	9% of Compensation	10% of Compensation

Benefit Provisions Evaluated and/or Considered (December 31, 2018)

Stipend Benefit:

Eligibility – Members who retire from City employment (regular, early reduced or disability retirement) after December 31, 2013 are eligible to receive a monthly stipend benefit payable from the Retirement System until age 65 (or Medicare eligibility) in lieu of retiree health plan benefits.

Annual Amount - \$40 per month times years of service at retirement. Benefit is payable to the member only until he/she becomes eligible for Medicare or dies (if earlier). No benefit is payable to a surviving spouse or child of a deceased Retirement System Member. This benefit increases by 3% each year beginning in January 2015.

Derivation of Valuation Assets

	Pension	Unallocated Income Reserve	Grand Total
A. Funding Value, 12/31/17	\$416,738,169		
B. Market Value, Beginning of Year	408,436,912	\$60,965,095	\$469,402,007
C1. Non-Investment Net Cash Flow	(8,230,546)		
C2. Transfer from the UI Reserve	3,000,000	(3,000,000)	
D. Investment Income (Market total)	(19,997,032)		
E. Market Value, End of Year	383,209,334	57,965,095	441,174,429
F. Phase-in Factor	20%		
G. Expected Income	30,230,971		
H. Market Value Gain (Loss): [D-G]	(50,228,003)		
I Recognition of Gain/(Loss)			
I1. Year One	(10,045,601)		
I2. Year Two	13,273		
I3. Year Three	588,662		
I4. Year Four	(5,141,803)		
I5. Year Five	163,279		
I6. Total	(14,422,190)		
J. Funding Value, 12/31/18 [A +C1+ C2+G+I6]	427,316,404	57,965,095	485,281,499
K. Net Funding Value Rate of Return	3.82%		

Market Value of Assets Reported for Valuation Comparative Statement

Year Ended Dec. 31	Assets Beginning of Year	Revenues			Expenses			Assets Year-End
		Employee Contrib.	Employer Contrib.	Investment Income	Retirement Benefits	Contrib. Refunds	Misc. Expenses	
2004	\$ 171,967,880	\$1,718,969	\$5,261,202	\$ 24,644,820	\$7,403,924	\$ 188,094	\$ 758,667	\$ 195,242,186
2005	195,242,186	1,829,649	5,769,159	17,035,074	8,014,168	182,999	1,055,818	210,623,083
2006	210,623,083	1,907,951	5,975,325	33,030,851	8,662,750	189,338	1,253,516	241,431,606
2007	241,431,606	2,001,290	7,896,489	19,937,351	9,262,791	199,779	1,416,037	260,388,129
2008	260,388,129	2,065,615	7,710,786	(71,138,091)	10,005,006	275,474	1,429,420	187,316,539
2009	187,316,539	2,272,170	8,433,917	46,453,891	10,471,659	90,776	1,292,212	232,621,870
2010	232,621,871	2,241,213	9,554,056	32,715,573	11,150,501	197,614	938,610	264,845,988
2011	264,845,988	2,252,998	10,599,328	5,091,133	12,037,530	115,034	1,102,784	269,534,099
2012	269,534,099	2,335,451	11,346,909	39,210,054	12,972,156	300,274	1,130,962	308,023,121
2013	308,023,121	2,428,547	11,778,953	61,515,708	13,508,748	264,954	1,037,143	368,935,484
2014	368,935,484	2,966,452	10,670,106	25,331,700	16,145,874	237,783	930,500	390,589,585
2015	390,589,585	3,331,128	11,417,873	(922,260)	18,173,306	267,342	811,363	385,164,315
2016	385,164,315	3,237,031	11,417,873	32,146,551	19,652,211	181,455	778,795	411,353,309
2017	411,353,309	3,112,561	11,623,730	68,397,702	20,797,339	125,183	4,162,773	469,402,007
2018	469,402,007	3,026,164	11,166,523	(19,794,244)	22,222,589	200,644	202,788	441,174,429

Note: Up to and including the year 2017, assets include retiree health plan (the IRC 401(h) account)

Note: Pension and retiree health assets combined for years before 2017

Additions to and Removals from Retired/Survivor Membership Comparative Statement

Year Ended Dec. 31	Additions		Removals		End of Year		Average Annual Benefits	Present Value of Benefits	Expected Removals
	No.	Annual Benefits*	No.	Annual Benefits	No.	Annual Benefits			
2004	24	\$ 749,117	11	\$ 159,821	396	\$ 7,576,925	\$ 19,134	\$ 90,336,864	11.3
2005	33	1,007,507	20	246,108	409	8,338,324	20,387	100,153,352	12.4
2006	25	802,970	17	281,824	417	8,859,470	21,246	105,705,500	12.5
2007	25	920,591	12	100,174	430	9,679,887	22,511	116,479,480	12.7
2008	21	707,365	15	251,647	436	10,135,605	23,247	124,265,687	13.0
2009	16	715,776	10	155,652	442	10,695,729	24,198	130,284,387	13.5
2010	39	1,183,836	16	258,781	465	11,620,784	24,991	140,993,607	14.3
2011	37	1,069,943	15	295,874	487	12,394,854	25,451	150,800,949	15.1
2012	26	978,426	8	141,390	505	13,231,890	26,202	168,103,297	15.6
2013	21	670,763	15	335,453	511	13,567,200	26,550	174,649,168	13.8
2014	83	3,078,647	11	224,445	583	16,421,402	28,167	221,871,914	13.3
2015	54	1,943,715	27	527,439	610	17,837,678	29,242	246,953,829	14.6
2016	33	1,093,273	20	372,359	623	18,558,592	29,789	258,762,265	14.2
2017	47	1,448,890	19	476,442	651	19,531,040	30,002	269,779,654	14.0
2018	38	1,505,893	15	350,507	674	20,686,426	30,692	283,701,843	14.9

* Includes post-retirement cost-of-living adjustments.

**Retirees and Beneficiaries as of
December 31, 2018
Tabulated by Type of Benefits Being Paid**

Type of Benefits Being Paid	Annual Benefits			
	No.	Pension	No.	Stipend
Age and Service Retirement Benefits	566	\$ 18,395,207	135	\$ 2,046,660
Disability Retirement Benefits*	23	500,784	2	14,046
Survivor Retirement Benefits	85	1,790,435	0	0
Total Retirement Benefits Being Paid	674	\$20,686,426	137	\$2,060,706

* Includes survivors of disabled retirees.

Retirees and Beneficiaries by Age as of December 31, 2018

Age	No.	Annual Benefits
45 - 49	2	\$ 54,498
50 - 54	24	1,140,033
55 - 59	59	2,515,049
60 - 64	140	4,314,328
65 - 69	142	4,430,777
70 - 74	135	3,891,668
75 - 79	76	2,299,108
80 - 84	49	1,025,066
85 - 89	32	763,172
90 & Over	15	252,727
Totals	674	\$20,686,426

Vested Former Members as of December 31, 2018

There were 82 inactive members reported as of December 31, 2018 with deferred estimated monthly pension benefits totaling 1,024,751. An inactive member is a person who has left City employment with an entitlement to retirement benefits upon meeting the conditions for deferred retirement. The schedule below shows the inactive members by attained age.

Age	No.	Monthly Benefits
Under 40	20	\$ 196,139
40 - 44	11	119,898
45 - 49	17	232,152
50 - 54	15	213,704
55 - 59	18	248,846
60 & Over	1	14,022
Totals	82	\$ 1,024,761

Estimated monthly pension benefits are shown in the chart above.

**Active Members
as of December 31, 2018
Tabulated by Valuation Group**

Valuation Groups	No.	Annual Payroll	Average		
			Age	Service	Pay
General/Management Members	466	\$31,720,068	48.4 yrs.	15.9 yrs.	\$68,069
Police Members	160	12,733,598	43.1	15.5	79,585
Total Active Members	626	\$44,453,666	47.0	15.8	\$71,012

Active Members Included in Valuation Comparative Schedule

Valuation Date	Active Members			Valuation Payroll	Average			
	General	Police	Totals		Age	Service	Pay	% Incr.
December 31								
2004	642	212	854	\$38,539,387	43.1	11.7	\$45,128	4.5 %
2005	654	218	872	40,492,380	43.0	11.6	46,436	2.9
2006	664	214	878	42,456,531	43.4	11.9	48,356	4.1
2007	669	217	886	44,646,848	43.5	11.9	50,391	4.2
2008	676	223	899	46,433,304	43.8	12.2	51,650	2.5
2009	698	219	917	51,510,466	44.1	12.5	56,173	8.8
2010	687	223	910	49,893,917	44.1	12.6	54,828	(2.4)
2011	690	227	917	50,604,786	44.1	12.5	55,185	0.7
2012	696	228	924	52,015,637	44.2	12.7	56,294	2.0
2013	694	227	921	54,261,035	44.6	13.2	58,915	4.7
2014	630	199	829	51,346,952	44.6	13.1	61,938	5.1
2015	582	182	764	49,317,710	45.0	13.7	64,552	4.2
2016	552	171	723	48,754,814	45.8	14.4	67,434	4.5
2017	506	167	673	46,305,597	46.2	14.9	68,805	2.0
2018	466	160	626	44,453,666	47.0	15.8	71,012	3.2

Additions to and Removals from Active Membership Actual and Expected Numbers

Year Ended	Number Added During Year		Retirement		Disability Retirement		Died-in- Service		Other Terminations		Active Members End of Year
	A	E	A	E	A	E	A	E	A	E	
	Dec. 31										
2009	48	30	12	24.8	0	1.2	0	1.4	18	29.4	917
2010	51	58	30	27.6	0	1.2	0	1.5	28	29.3	910
2011	64	57	27	25.1	0	1.2	0	1.6	30	29.0	917
2012	60	53	19	26.7	1	1.1	0	1.6	33	30.2	924
2013	39	0	12	27.1	2	1.3	0	1.2	28	29.8	921
2014	0	0	72	33.0	0	1.4	0	1.2	20	28.2	829
2015	0	0	41	22.2	0	1.3	0	1.0	24	23.7	764
2016	0	0	26	19.2	0	1.4	0	1.0	15	19.9	723
2017	0	0	31	21.2	1	1.4	0	1.0	18	16.2	673
2018	0	0	24	20.6	0	1.4	0	1.0	23	13.6	626
5-Year Totals	0	0	194	116.2	1	6.9	0	5.2	100	101.6	

A Represents actual number.

E Represents expected number based on assumptions outlined in Section C.

General/Management Active Members - December 31, 2018 by Age and Years of Service

Age	Years of Service on Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
25-29		4						4	\$ 229,931
30-34		32	6					38	2,144,762
35-39		24	28	6				58	3,709,465
40-44		27	25	24	4			80	5,491,079
45-49		11	16	13	9	1		50	3,671,943
50-54		10	17	24	17	15	1	84	6,282,205
55-59		10	15	23	16	17	12	93	6,278,518
60		2	1	2	3	1	1	10	671,330
61		3	1	5	2	1	3	15	819,760
62		3	2	2	3	2		12	764,166
63		1	1		3	4	2	11	887,594
64			1	1		1		3	211,012
65					2	1	1	4	355,068
66							1	1	55,533
67		1						1	38,427
68			1	1				2	109,275
Totals	0	128	114	101	59	43	21	466	\$31,720,068

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 48.4 years
Service: 15.9 years
Annual Pay: \$68,069

Police Active Members - December 31, 2018 by Age and Years of Service

Age	Years of Service on Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
25-29		2						2	\$ 126,153
30-34		16	1					17	1,211,050
35-39		8	22	4				34	2,611,383
40-44		2	11	20	1			34	2,722,145
45-49		1	5	19	19			44	3,726,895
50-54			1	9	11	2		23	1,853,789
55-59				1	2			3	253,228
60			1	1	1			3	228,955
Totals	0	29	41	54	34	2	0	160	\$12,733,598

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 43.1 years
Service: 15.5 years
Annual Pay: \$79,585

SECTION C

ACTUARIAL METHODS, ASSUMPTIONS AND DEFINITIONS OF TECHNICAL TERMS

Actuarial Methods Used for the Valuation

Actuarial Cost Method

The normal cost and the allocation of actuarial present values between service rendered before and after the valuation date were determined using an individual entry-age actuarial cost method having the following characteristics:

- (i) the annual normal costs for each individual active member, payable from the member's actual date of employment to projected date of retirement, are sufficient to accumulate the actuarial present value of the member's benefit at the time of retirement;
- (ii) each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.

Amortization of Unfunded Actuarial Accrued Liabilities

The Pension Plan unfunded actuarial accrued liability (UAAL) was determined using the funding value of assets and actuarial accrued liability calculated as of the valuation date. The UAAL amortization payment (one component of the contribution requirement), was developed using a level dollar amortization method that fully amortizes the UAAL over a 19 year period. This UAAL payment reflects payments expected to be made between the valuation date and the date contributions determined by this report are scheduled to begin.

Asset Valuation Method

The funding value of assets used in the pension plan valuation recognizes assumed investment income fully each year. Differences between actual and assumed investment income are phased in over a 5-year period. During periods when investment performance exceeds the assumed rate, the funding value of assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, the funding value of assets will tend to be greater than market value. This is the result of phasing in differences between actual investment income (market value basis) and expected investment income (funding value basis).

Actuarial Assumptions Used for the Valuation

Investment Return (net of expenses).

For the pension plan valuation an investment return assumption of 7.30% per year, compounded annually was used. This rate consists of a net real rate of return of 3.05% a year plus a long-term rate of wage inflation of 4.25% a year.

This assumption is used to equate the value of payments due at different points in time and was first used for the December 31, 2017 valuation.

Net market value rates of investment return during the last 5 plan years are shown below:

	For the Year Ending December 31st				
	2018	2017	2016	2015	2014
Rate of Investment Return	-4.30%	17.33%	8.38%	-0.03%	7.17%

Pay Projections: These assumptions are used to project current pays to those upon which benefits will be based.

Sample Ages	Annual Rate of Pay Increase for Sample Ages		
	Base	Management	
	(Economic)	Merit and Longevity	Totals
20	4.25 %	2.00 %	6.25 %
25	4.25	2.00	6.25
30	4.25	1.00	5.25
35	4.25	1.00	5.25
40	4.25	0.50	4.75
45	4.25	0.50	4.75
50	4.25	0.20	4.45
55	4.25	0.20	4.45
60	4.25	0.10	4.35
65	4.25	0.00	4.25

Actuarial Assumptions Used for the Valuation

Years of Service	Annual Rate of Pay Increase for Indicated Years of Service				
	Base (Economic)	General		Police	
		Merit and Longevity	Total	Merit and Longevity	Total
1	4.25 %	3.50 %	7.75 %	5.00 %	9.25 %
2	4.25	3.50	7.75	5.00	9.25
3	4.25	3.50	7.75	4.70	8.95
4	4.25	3.00	7.25	4.50	8.75
5	4.25	2.50	6.75	2.20	6.45
6	4.25	2.00	6.25	2.20	6.45
7	4.25	2.00	6.25	2.10	6.35
8	4.25	2.00	6.25	2.10	6.35
9	4.25	2.00	6.25	2.00	6.25
10	4.25	2.00	6.25	2.00	6.25
11	4.25	2.00	6.25	2.00	6.25
12	4.25	2.00	6.25	2.00	6.25
13	4.25	2.00	6.25	1.00	5.25
14	4.25	1.00	5.25	0.00	4.25
15	4.25	0.00	4.25	0.00	4.25

The base economic assumptions were first used in the December 31, 2007 valuation. The merit and longevity assumptions were first used for the December 31, 2012 valuation.

The assumed rate of price inflation used in the pension plan valuation is 2.75% per year.

Actuarial Assumptions Used for the Valuation

Mortality Table: The RP-2000 Mortality Combined Healthy Table projected to 2020 using Projection Scale BB was used for both men and women. Sample values follow:

Sample Ages	Future Life Expectancy (Years)	
	General/Police	
	Men	Women
55	28.37	30.90
60	23.94	26.34
65	19.74	21.98
70	15.83	17.93
75	12.26	14.25
80	9.13	10.95

This assumption is used to measure the probabilities of members dying before retirement and the probabilities of each benefit payment being made after retirement. The membership size in this group is not sufficiently large to determine if there is a margin for mortality improvements. However, based upon our experience with a broad cross section of public sector plans similar in nature to this plan, it is our opinion that there is a provision for future mortality improvement in the current mortality assumption.

Actuarial Assumptions Used for the Valuation

Rates of separation from active membership: The rates do not apply to members eligible to retire and do not include separation on account of death or disability. This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	Percent Separating within Next Year	
		General/Management	Police
ALL	0	11.00 %	7.00 %
	1	10.00	5.00
	2	8.00	3.50
	3	8.00	3.50
	4	7.00	3.00
25	5 & Over	5.00	3.50
30		5.00	3.00
35		4.50	2.50
40		3.50	2.00
45		2.50	1.00
50		1.50	1.00
55		1.00	0.50
60	0.50	0.50	

The years of service rates were first used for the December 31, 2012 valuation. The age based rates were first used for the December 31, 2004 valuation.

Rates of Disability: These assumptions represent the probabilities of active members becoming disabled.

Sample Ages	Percent Becoming Disabled within Next Year
20	0.08 %
25	0.08
30	0.08
35	0.08
40	0.20
45	0.27
50	0.49
55	0.89

Actuarial Assumptions Used for the Valuation

Rates of Retirement: These rates are used to measure the probabilities of an eligible member retiring under the Regular and Early Reduced retirement provisions during the next year.

Retirement Ages	Regular Retirement Rates		Early Retirement Rates		
	General/ Management	Police	Years of Service	General/ Management	Police
50		35%	20	2%	2%
51		35	21	2	2
52		35	22	2	2
53		30	23	2	2
54		25	24	2	2
55	20%	20	25	2	2
56	20	20	26	2	2
57	20	20	27	2	2
58	20	20	28	2	2
59	20	20	29	2	2
60	30	100	30	2	2
61	20	100	31		2
62	30	100	32		2
63	20	100	33		2
64	20	100	34		2
65	20	100	35		2
66	20	100			
67	20	100			
68	20	100			
69	20	100			
70	100	100			

General and Management members were assumed to be eligible for regular retirement after attaining age 55 with 30 years of service, or age 60 with 5 years of service. These members were assumed to be eligible for early reduced retirement after completing 20 years of service.

A Police member was assumed eligible for retirement after attaining age 50 with 25 years of service, or, after attaining age 60 with 15 or more years of service. Police members were assumed to be eligible for early reduced retirement after completing 20 years of service.

The early retirement rates were first used for the December 31, 2004 valuation. The regular retirement rates were first used for the December 31, 2012 valuation.

Miscellaneous and Technical Assumptions

Marriage Assumption:	80% of participants are assumed to be married for purposes of death-in-service benefits. In each case the male was assumed to be 3 years older than the female.
Pay Increase Timing:	Beginning of year.
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Benefit Service:	Exact fractional service is used to determine the amount of benefit payable.
Other:	Disability and turnover decrements do not operate during retirement eligibility.
Miscellaneous:	The calculated retirement benefits were increased by 9% for General/Management and 11% for Police to account for the inclusion of unused sick leave and vacation time in the calculation of Final Average Compensation and by 1% to account for the impact of subsidized optional forms of payment.
Death/Disability:	Fifty percent of disabilities and deaths for Police were assumed to be duty related. Fifty percent were assumed to be unrelated to duty. Twenty-five percent of disabilities for General/Management were assumed to be duty related. Seventy-five percent were assumed to be unrelated to duty. The recovery rate from disability was assumed to be 0 (i.e., no disabled individual was assumed to recover and return to work).
Forfeiture Assumption:	General and Management members who terminate close to retirement were assumed to elect a deferred retirement while those terminating with less service were assumed to elect a refund of their contributions in lieu of deferred retirement benefits. All vested terminated Police members were assumed to elect a deferred retirement benefit.

Definitions of Technical Terms

Accrued Service - Service credited under the system which was rendered before the date of the actuarial valuation.

Actuarial Accrued Liability - The difference between the actuarial present value of system benefits and the actuarial present value of future normal costs. Also referred to as “past service liability.”

Actuarial Assumptions - Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method - A mathematical budgeting procedure for allocating the dollar amount of the “actuarial present value of future benefit” between future normal costs and actuarial accrued liability. Sometimes referred to as the “actuarial funding method.”

Actuarial Equivalent - One series of payments is said to be actuarially equivalent to another series of payments if the two series have the same actuarial present value.

Actuarial Gain (Loss) - The difference between actual unfunded actuarial accrued liabilities and anticipated unfunded actuarial accrued liabilities -- during the period between two valuation dates. It is a measurement of the difference between actual and expected experience.

Actuarial Present Value - The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest, and by probabilities of payment.

Amortization - Paying off an interest-discounted amount with periodic payments of interest and (generally) principal -- as opposed to paying it off with a lump sum payment.

Normal Cost - The portion of the actuarial present value of future benefits that is assigned to the current year by the actuarial cost method. Sometimes referred to as “current service cost.”

Unfunded Actuarial Accrued Liabilities - The difference between actuarial accrued liabilities and valuation assets. Sometimes referred to as “unfunded past service liability” or “unfunded supplemental present value.”

Most retirement systems have unfunded actuarial accrued liabilities. They arise each time new benefits are added and each time an actuarial loss occurs. The existence of unfunded actuarial accrued liabilities is not in itself bad, any more than a mortgage on a house is bad. Unfunded actuarial accrued liabilities do not represent a debt that is payable today. What is important is the ability to amortize the unfunded actuarial accrued liabilities and the trend in their amount (after due allowance for devaluation of the dollar).

SECTION D

ADDITIONAL DISCLOSURES

Supplementary Information

Schedule of Pension Funding Progress (Police & General Combined)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
2009	\$ 248,954,926	\$ 283,777,829	\$ 34,822,903	87.7 %	\$51,510,466	67.6 %
2010	258,975,306	289,515,368	30,540,062	89.5	49,893,917	61.2
2011	263,827,136	301,723,872	37,896,736	87.4	50,604,786	74.9
2012	282,267,554	347,118,061	64,850,507	81.3	52,015,637	124.7
2013	311,444,880	373,386,564	61,941,684	83.4	54,261,035	114.2
2014	339,286,725	402,856,926	63,570,201	84.2	51,346,952	123.8
2015	363,204,298	430,695,376	67,491,078	84.3	49,317,710	136.8
2016	391,086,781	448,252,930	57,166,149	87.2	48,754,814	117.3
2017 *	477,703,264	466,915,452	(10,787,812)	102.3	46,305,597	(23.3)
2018 *	485,281,499	478,543,350	(6,738,149)	101.4	44,453,666	(15.2)

* Includes assets (if any) held in the Unallocated Income Reserve.

Schedule of Employer Contributions

Valuation Year Ended Dec. 31	Fiscal Year Ended Dec. 31	Contribution Rates as % of Valuation Payroll			Computed Dollar Contributions	Actual Contributions	Percent Contributed
		General	Police	Wt. Avg.			
2009	2011	13.17 %	20.78 %	15.15 %	\$8,533,571	\$7,730,986	91 %
2010	2012	12.86	20.72	14.91	8,149,433	7,928,104	97
2011	2013	12.56	18.94	14.25	7,897,193	7,917,354	100
2012 [^]	2014				11,563,007	11,563,007	100
2013 [^]	2015				11,397,261	11,417,873	100
2014 [^]	2016				11,417,873	11,417,873	100
2015 [^]	2017				11,610,968	11,623,730	100
2016	2018				10,623,760	11,166,523	100
2017 [^]	2019				10,011,563		
2018 [^]	2020				10,045,628		

[^] New methods and/or assumptions

Computed dollar contributions before the 2012 valuation year are based on contribution rates and projected valuation payroll. Actual contributions were provided by the City. Deviations between actual and computed contributions may be attributable to differences between projected and actual payroll.



February 25, 2019

Ms. Angie Uthe
City of Sioux Falls Employee's
Retirement System
City Hall - 224 West 9th Street
Sioux Falls, South Dakota 57104-6407

Dear Angie:

Enclosed is one copy of the report of the annual actuarial valuation of the City of Sioux Falls Employee's Retirement System.

Sincerely,

A handwritten signature in black ink that reads "Louise Gates". The signature is written in a cursive, flowing style.

Louise M. Gates, ASA, FCA, MAAA

Enclosure